Chapter 1. Purpose and Need

1.A. Introduction

This Final Environmental Impact Statement (Final EIS) was prepared pursuant to requirements of the National Environmental Policy Act (NEPA) for the Salmon-Challis National Forest (S-CNF) Noxious Weed Management Program. The S-CNF proposes to implement an integrated series of weed treatment practices that would eradicate, reduce, and/or slow the spread of noxious and invasive non-native populations of weeds on the S-CNF. The project area covers more than three million acres of the S-CNF, excluding the Frank Church River of No Return Wilderness (FCRONRW), and includes existing as well as future potential weed infestation sites. Map 1-1 (back of Chapter 1) shows the boundaries of the S-CNF and its location in Idaho.

This chapter of the Final EIS describes the problems caused by noxious weeds, explains the purpose and need to control the spread of weeds on the S-CNF, and summarizes the Proposed Action. This chapter also describes the management direction for the S-CNF, interrelated projects, scope of the analysis in this Final EIS, and decisions to ultimately be made.

1.A.1. Integrated Weed Management

As part of a larger integrated pest management (IPM) strategy (as defined in Forest Service Handbook 3409), the S-CNF uses the integrated weed management (IWM) approach to manage noxious and invasive non-native weeds. The IWM approach is an important component of the purpose and need described in this chapter. Through IWM, the S-CNF recognizes that a single management approach will not be successful, but that implementing a fully integrated approach to weed management significantly improves the chances of meeting the management goals of this Final EIS.

The Forest Service (1995a) Manual on Noxious Weed Management (FSM 2080.5) states that IWM is, "An interdisciplinary pest management approach for selecting methods for preventing, containing, and controlling noxious weeds in coordination with other resource management activities to achieve optimum management goals and objectives." IWM goals for the S-CNF are reflected in the eight project purposes described in this Chapter. These goals include eradicating, controlling, containing, and preventing the occurrence of noxious and invasive non-native weeds on the Forest to protect the natural condition and biodiversity of ecosystems, as well as sensitive and unique habitats and associated biota, and to maintain or improve watershed health and function. Management goals also include informing and educating the public on weed problems; working cooperatively with state, county, and local agencies and private landowners to increase the effectiveness of weed management efforts; and complying with applicable laws, orders, policies, strategies, and Forest Plans pertaining to weed control.

Important non-treatment practices are the cornerstone of IWM and will continue as an integral component of IWM in all alternatives and the Proposed Action addressed in this Final EIS. They are:

Weed Prevention. Proactive weed prevention is the first priority in the management of noxious weeds. "Weed prevention" consists of proactive measures that reduce or prevent the likelihood of introducing, establishing, and spreading noxious weeds. This practice is an essential consideration in Forest-wide administrative actions such as implementing and enforcing travel plans and the administration of livestock grazing through allotment management plans and annual use permits. Ongoing and proposed S-CNF activities also incorporate project mitigation measures, standard operating procedures, and best management practices (BMPs) that address weed prevention measures pertinent to each project. This program is a critical, and cost-efficient, component of IWM.

Weed Inventory and Early Detection. This practice consists of regularly gathering data on the extent, location, and composition of weed species on the S-CNF for use in refining weed management objectives, determining treatment priorities, and selecting the most effective treatment methods for use.

Information and Education Programs. These programs target both external and internal audiences. External programs are designed to inform and educate the public regarding weed problems on and immediately adjacent to the S-CNF, the effects of weeds on other forest resources, available treatment, and how humans can affect the spread of weeds. Internal programs include S-CNF staff training and monitoring programs. Education includes consultation, brochures, and posters.

Cooperative Partnerships and Coordination. This practice consists of developing cooperative partnerships with groups dedicated to weed management on and adjacent to the S-CNF.

Legal Compliance. The S-CNF will comply with and implement current federal and state laws, Presidential Executive Orders, Forest Policies and Strategies, and Forest Plans related to the management of noxious and other invasive, non-native weeds.

1.A.2. Cooperative Weed Management Areas and Other Coordinated Efforts

Cooperative Weed Management Areas (CWMAs) are a vital component of the Proposed Action and all alternatives presented in this Final EIS. The state of Idaho formed CWMAs as the centerpiece of its *Strategic Plan for Managing Noxious Weeds* in 1999 (Idaho Department of Agriculture 1999). Top priorities include the involvement of all landowners in a watershed or region, development of IWM Plans, and defining roles and partnerships that allow for the blurring of jurisdictional lines of ownership to optimize cooperative efforts. Each CWMA works with state, federal, and county officials, and neighboring CWMAs to coordinate weed management efforts. Coordination with CWMAs is an effective and successful approach to manage and treat noxious weeds within the S-CNF, prevent the spread of noxious weeds between the S-CNF and non-Forest lands, and educate the public.

The S-CNF coordinates weed management efforts with several CWMAs: Lemhi County CWMA, Custer County CWMA, the Lost Rivers (Butte and Custer Counties) CWMA,

and the Continental Divide CWMA (including parts of Lemhi, Butte, Jefferson, and Clark Counties). An additional CWMA for the FCRONRW is being finalized, which will expand coverage in Custer and Lemhi Counties and also include portions of Idaho and Valley Counties. These projects develop weed control activities with the BLM, S-CNF, and private landowners in each management area. The S-CNF participates actively in each of these CWMAs by providing workshops, personnel, funds, and equipment for weed control activities off S-CNF lands.

The S-CNF also develops cooperative partnerships with other groups dedicated to the coordinated and effective management of noxious weeds on and adjacent to the S-CNF. Presently, S-CNF managers work with Lemhi, Butte, and Custer Counties' community based weed management organizations, the Idaho Noxious Weed Coordinating Committee (INWCC), and other federal agencies to coordinate planning and control efforts. This coordination effort, along with continued participation in CWMAs, is an important part of future weed management activities for the S-CNF.

1.B. Noxious Weeds Defined

The Federal Noxious Weed Act of 1974 defines a noxious weed as "a plant which is of foreign origin, is new to, or is not widely prevalent in the United States, and can directly or indirectly injure crops or other useful plants, livestock or the fish and wildlife resources of the United States, or the public health" (P.L. 93-629). Recent amendments categorize noxious weeds with "undesirable plants," defined as "plant species that are classified as undesirable, noxious, harmful, exotic, injurious, or poisonous, pursuant to State or Federal law." (7 USCA § 2814).

Idaho's Noxious Weed Control Act defines a noxious weed as "any plant having the potential to cause injury to public health, crops, livestock, land or other property; and which is designated as noxious …." (Idaho Code § 22-2402).

Forest Service Manual 2080 defines noxious weeds as "those plant species designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one or more characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host to serious insects or disease and being non-native or new to or not common to the United States or parts thereof." (U.S. Forest Service 1995a).

A weed is simply a plant out of place. A plant is usually considered a weed when it interferes with beneficial uses of land or water, displaces desirable or native plants, or affects human and animal health. Weeds aggressively compete for moisture, nutrients, space, and sunlight with surrounding desirable plants. Noxious weeds are non-native species with the potential to spread rapidly, usually through superior reproductive capacity, competitive advantage mechanisms, and lack of natural enemies. They are difficult to eradicate once established. In addition, large populations can lead to economic loss and declines in land values, grazing, and forage.

More than 40 weed species are considered in this analysis, including species designated as "noxious" by the State of Idaho and additional invasive species found on or near the

S-CNF. Weed species that occur on the S-CNF are referred to as established or new invaders, while those that occur near the S-CNF are referred to as potential invaders.

Generally, weeds are defined in terms of interference with the economic value of the land. The establishment and spread of noxious weeds often may signal the ecological decline of entire watersheds because of the detrimental impact of their spread on the biodiversity of plant communities. Declines in vegetative biodiversity are usually quickly followed by declines in faunal biodiversity in a domino effect. Noxious weeds are able to displace native vegetation by out-competing it (Callihan et al. 1999). Implementing weed management strategies early while infestations are manageable reduces the economic, cultural, and environmental impact these populations can have on the ecosystem.

1.C. Purpose and Need for Action

1.C.1. History

Before the arrival of Europeans, plant communities within what is now the S-CNF were represented by species that adapted to regional/local physical and biological forces over long periods. This vegetation provided habitat for fauna, soil stability, and watershed quality.

Plants foreign to the North American continent began arriving with the first Europeans. Exotic species have been spreading across the Pacific Northwest since the late 1800s, and records indicate that their densities are increasing and their range is expanding (Rice 2001). Recreation and commercial uses of the S-CNF have facilitated the spread of introduced species throughout the S-CNF. Many introduced species of plants occur on the S-CNF, including orchard grass, Kentucky bluegrass, timothy, and fruit trees. Generally, these species have become established in localized areas, but their ecological effects are not severe. Aggressive invasive species like spotted knapweed are capable of totally out-competing native species and can change ecosystem conditions, processes, and watershed function. These species can dominate the native plant community, altering the natural succession of vegetation and changing the way vegetation withstands and responds to natural disturbances like fire.

Noxious weed control on the S-CNF has been a continuing program generally directed at reducing identified infestations and arresting the spread of noxious weeds. In an Environmental Assessment (EA), Finding of No Significant Impact (FONSI), and Decision Notice prepared for noxious weed and poisonous plant control on the Challis National Forest in 1989, the Forest Service proposed to treat noxious weeds and poisonous plants. The EA reported that the "weeds are found as single plants or in small patches 0.01 acre or in large areas of up to 20 acres and are widely scattered over the entire National Forest." Target weed species listed in the Challis National Forest EA included spotted knapweed, Canada and musk thistle, leafy spurge, black henbane, and toadflax, as well as larkspur, a native poisonous plant. The Forest Service (1989) reported that the noxious weed project acres covered within the Challis National Forest EA totaled 30,020 acres.

In similar documents prepared for the Salmon National Forest in 1987, the Forest Service proposed treatments of noxious weeds and poisonous plants. Noxious weed project acres covered in the Salmon National Forest EA totaled 1,695 acres with six weed species targeted for treatment. They consisted of yellow toadflax, leafy spurge, spotted knapweed, Canada and musk thistle, and black henbane. In 1987, spotted knapweed was estimated to cover a project area of approximately 1,000 acres in five drainages on the North Fork Ranger District, with approximately 120 acres targeted for treatment using biological controls. On the Salmon and Cobalt Ranger Districts in 1987, spotted knapweed covered a project area of approximately 100 acres in two drainages, with about 10 acres targeted for treatment using herbicides. Today, spotted knapweed occupies approximately 54,568 acres at approximately 500 sites on the North Fork Ranger District and 7,539 acres at more than 500 sites on the Salmon-Cobalt Ranger District. Spotted knapweed also is present, but much less abundant, on all of the other S-CNF Ranger Districts. Figure 1-1 depicts several of the noxious weed species that continue to be abundant on the S-CNF today.

1.C.2. Previous Weed Management Efforts

The Challis National Forest and the Salmon National Forest both adopted a weed control plan based on IPM in 1989 and 1987, respectively. These weed control efforts focused on the noxious and invasive species listed previously, including spotted knapweed, leafy spurge, Canada thistle, musk thistle, black henbane, and yellow toadflax. Weed treatments were very limited prior to 1995, but since then have generally increased each year from 586 acres treated in 1995 to 3,371 acres treated in 2001. Much of the early work was done in the North Fork Ranger District. Virtually all of these acreages were treated using herbicides; however, biocontrol efforts were initiated in the late 1980s in the North Fork Ranger District. The S-CNF has also worked with the State of Idaho, county weed control agencies, extension agents, and landowners to expand collaborative treatment efforts along roads and trails.

Early monitoring efforts focused on implementation monitoring of the proper application of mitigation measures and BMPs. Effectiveness monitoring of treatment success was generally limited to qualitative assessments of weed densities pre- and post-treatment. Although not formally evaluated, observations indicated the target species had been reduced in density and, in many locations, had either been eradicated or reduced in size. With the increased treatment efforts resulting from the wildfires of 2000, more quantitative monitoring efforts have been established. This monitoring entails establishing permanent transects and measuring the cover of target and non-target plant species. Transects were initiated in 2001 and are scheduled to be re-read in 2003.

Although weed treatment efforts have had some success, new weed infestations continue to appear on the S-CNF. Existing weed populations are expanding. The analysis contained in this Final EIS shows that nine weed species with established populations and 15 weed species with new populations presently occur on the S-CNF. Documented, measured infestations of these species on the S-CNF now exceed 66,000 acres at more than 2,500 sites. Most weed infestations range from less than 1 acre up to 25 acres in size, although extensive infestations of spotted knapweed are present on the northern part of the S-CNF. An additional 23 weed species of potential invaders

occur near the S-CNF. Table 1-1 lists the common and scientific names of the 23 potential, 15 new, and nine established weed species that presently occur on or near the S-CNF.

1.C.3. Project Purpose

The purposes of the proposed S-CNF Noxious Weed Management Program are to:

1. Protect the natural condition and biodiversity of ecosystems and watershed function within the S-CNF by preventing and/or limiting the introduction and subsequent spread of invasive, non-native plant species that displace native vegetation.
2. Eliminate new invaders (weed species not previously reported in an area) before they become established.
3. Contain and reduce known and potential weed seed sources throughout the S-CNF.
4. Prevent or limit the spread of established weeds into areas containing little or no infestation.
5. Protect sensitive and unique habitats including Research Natural Areas (RNAs), wetlands, riparian areas, and plant populations.
6. Develop criteria to prioritize invasive weed species and treatment areas. Use these criteria to identify priority weed treatment locations within the S-CNF.
7. Comply with and implement current Federal and State law, Presidential Executive Orders, Forest Service policy and strategies, and Forest Service plans regarding the control of noxious and other invasive, non-native weeds.
8. Cooperate with county, state, other federal agencies, and private land owners, and other organizations (including CWMAs) interested in managing invasive weeds.

The Notice of Intent (NOI) to prepare the Draft of this EIS stated that prioritization would be given to treating areas that may contribute to the continuing spread of weeds into Lemhi, Custer, and Butte Counties within the S-CNF.

1.C.4. Project Need

According to the recent scientific assessment of the Interior Columbia Basin, invading weeds can alter ecosystem processes, including productivity, decomposition, hydrology, nutrient cycling, and natural disturbance patterns such as frequency and intensity of wild fires (Quigley and Arbelbide 1997). Changing these processes can lead to displacement of native plant species, eventually impacting wildlife and native plant habitat, recreational opportunities, natural hydrologic processes, and scenic beauty.

Noxious and invasive, non-native weeds are spreading on public and private lands at an alarming rate. The Departments of Agriculture in 11 western states estimate that there are about 70,000,000 acres of invasive weeds on private, state, and federal wildlands (Asher and Spurrier 1998). At an average annual rate of spread of 14 percent (U.S. Bureau of Land Management 1985), the 70,000,000 acres of weed infestations would lead

Spotted Knapweed *(Centaurea maculosa)*
G. A. Mulligan CDFA, California Department of Food & Agriculture, Botany Laboratory.

Staff CDFA, California Department of Food & Agriculture, Botany Laboratory.

Canada Thistle *(Cirsium arvense)*
Staff CDFA, California Department of Food & Agriculture, Integrated Pest Control Branch.

Yellow Toadflax *(Linaria vulgaris)*
© Br. Alfred Brousseau, Saint Mary's College.

FIGURE 1-1 (1 of 2)
Abundant Noxious Weed Species

THIS PAGE LEFT INTENTIONALLY BLANK

Leafy Spurge *(Euphorbia esula)*
Staff CDFA, California Department of Food & Agriculture, Botany Laboratory.

Musk Thistle *(Carduus nutans)*
Staff CDFA, California Department of Food & Agriculture, Integrated Pest Control Branch.

FIGURE 1-1 (2 of 2)
Abundant Noxious Weed Species

THIS PAGE LEFT INTENTIONALLY BLANK

to 3,500,000 acres of new weed infestations in 1 year. The spread of weeds can primarily be attributed to human activities associated with vehicles and roads (Roche and Roche 1991), contaminated livestock feed, contaminated seed, and ineffective re-vegetation practices on disturbed lands (Callihan et al. 1991). Wind, water, birds, wildlife, and livestock also contribute to weed spread.

TABLE 1-1
Common and Scientific Names of Weeds that are Potential, New, and Established Invaders on Ranger Districts of the S-CNF

Potential Invaders[1]	Potential Invaders[1] (continued)	New Invaders[2]	Established Invaders[3]
Yellow starthistle (Centaurea solstitalis)	Milium (*Milium vernale*)	Rush skeletonweed (*Chondrilla juncea*)	Spotted knapweed (*Centaurea maculosa*)
Purple loosestrife (*Lythrum salicaria*)	Eurasian watermilfoil (*Myriophyllum spicatum*)	Dalmation toadflax (*Linaria genistifolia*)	Canada thistle (*Cirsium arvense*)
Jointed goatgrass (*Aegilops cylindrica*)	Matgrass (*Nardus stricta*)	Yellow toadflax (*Linaria vulgaris*)	Musk thistle (*Carduus nutans*)
Skeletonleaf bursage (*Ambrosia tomentosa*)	Silver nightshade (*Solanum elaeagnifolium*)	Russian knapweed (*Acroptilon repens*)	Bull thistle (*Cirsium vulgare*)
Diffuse knapweed (*Centaurea maculosa*)	Buffalo bur (*Solanum rostratum*)	Sulfur cinquefoil (*Potentilla recta*)	Leafy spurge (*Euphorbia esula*)
Meadow knapweed (*Centaurea pratensis*)	Perennial sowthistle (*Sonchus arvensis*)	Hoary alyssum (*Berteroa incana*)	Black henbane (*Hyoscyamus niger*)
Poison hemlock (*Conium maculatum*)	Johnsongrass (*Sorghum halepense*)	St. Johnswort (*Hypericum perforatum*)	Hoary cress (whitetop) (*Cardaria draba*)
Field bindweed (*Convolvulus arvensis*)	Puncturevine (*Tribulus terrestris*)	Houndstongue (*Cynoglossum officinale*)	Common mullein (*Verbascum thapsus*)
Common crupina (*Crupina vulgaris*)	Syrian bean caper (*Zygophyllum fabago*)	Common tansy (*Tanacetum vulare*)	Cheatgrass (*Bromus tectorum*)
Scotch broom (*Cytisus scoparius*)		Tansy ragwort (*Senecio jacobaea*)	
Toothed spurge (*Euphorbia dentata*)		Dyers woad (*Isatis tinctoria*)	
Meadow hawkweed (*Hieracium pratense*)		Scotch thistle (*Onopordum acanthium*)	
Orange hawkweed (*Hieraclum aurantiacum*)		Bur buttercup (*Ranunculus testiculatus*)	
Perennial pepperweed (*Lepidium latifolium*)		Field pennycress *(Thlaspi arvense)*	
		Blue mustard *(Chorispera tenella)*	

[1] Potential invaders are not currently present on the S-CNF but are present in surrounding counties or states. The potential for their establishment on the S-CNF is high.
[2] New invaders are present on the S-CNF but are limited in distribution and numbers of locations. The potential for their further expansion on the S-CNF is high.
[3] Established invaders are present in high densities or are widely distributed on the S-CNF. The potential for their further expansion on the S-CNF is very high.

Noxious and undesirable weeds have established themselves throughout the Northwest, including the S-CNF where nine species with established populations and 15 species with new populations are known to infest more than 66,000 acres on more than 2,500 sites. It is likely many more infestations are yet to be discovered. Table 3-1 (in Chapter 3) summarizes the number of weed species, estimated acres, and number of sites of known weed infestations by Ranger District on the S-CNF, excluding the FCRONRW. Map 3-1 (back of Chapter 3) depicts inventoried noxious weed infestations on the S-CNF.

The North Fork Ranger District contains the greatest number of weed species (16) and acres of weed infestations (54,638) among the seven S-CNF Ranger Districts, followed by the Salmon-Cobalt Ranger District (13 species; 8,182 acres) (Table 3-1). Weed infestations on these two Ranger Districts together comprise approximately 94 percent of all inventoried noxious weed infestations on the S-CNF.

Table 3-1 also lists the three most abundant weed species (acres of infestations) within each S-CNF Ranger District. They are represented by a total of seven species, and include spotted knapweed, musk thistle, Canada thistle, bull thistle, leafy spurge, yellow toadflax, and sulphur cinquefoil. The three most abundant weed species within each Ranger District dominate that Ranger District's weed communities, collectively accounting for approximately 88 percent of all weed infestations on the Lost River Ranger District; 95 percent on the Leadore Ranger District; 99 percent on the Challis, North Fork, Salmon-Cobalt, and Yankee Fork Ranger Districts; and 100 percent on the Middle Fork Ranger District (Table 3-1).

Many weed species reproduce by sprouting from roots as well as by prolific seed production. Quigley and Arbelbide (1997) make reference to colonizer and invader noxious weeds. Colonizers tend to germinate under a wide range of environmental conditions, establish quickly, exhibit fast seedling growth, and, once established, out-compete native species for water and nutrients. Invaders can establish on relatively intact vegetative cover and displace native species without the aid of soil surface disturbance. Many of the most insidious noxious weed species (knapweeds, leafy spurge, rush skeletonweed, and yellow starthistle) have characteristics of both colonizers and invaders.

Most habitat criteria for weeds are fairly broad, which is one of the characteristics that makes these species so successful in adapting to new environments. Other general characteristics that often aid in the invasion and spread of weeds are their high reproductive potentials; adaptations to disturbed sites; allelopathic (toxic) compounds that provide weeds a competitive edge by suppressing growth of other vegetation; poisonous compounds, latex sap, barbs, or prickles that make weeds unpalatable; and/or their lack of natural enemies outside their native country and range. Because of the ability to invade or colonize new areas and a lack of natural predators to keep them in check, weeds can spread rapidly to non-infested areas.

Noxious and invasive weed expansion and establishment does not recognize ownership or administrative boundaries. Weeds that have become established on roadways are likely to encroach upon adjacent private croplands. Infestations on private lands are likely to encroach upon public lands and vice versa. The economic effects on private land productivity and treatment costs are considerable. Table 3-2 (in Chapter 3) lists the

species and acres of noxious weeds inventoried just outside the S-CNF boundaries that are associated with the S-CNF Ranger Districts. The presence of these weeds was documented as part of the overall database compilation for the proposed Noxious Weed Management Program on the S-CNF. Gathering near-Forest data such as these contributes to the cooperative weed management programs involving the Forest Service and neighboring counties like Custer County and Lemhi County, and is integral to the overall success of weed management on and near the S-CNF. Map 3-1 depicts weed infestations inventoried just outside the S-CNF that are listed in Table 3-2, as well as inventoried weed infestations on the S-CNF that are listed in Table 3-1. As more inventories are completed, weed acres and distribution will surely increase.

Inventoried weed infestations just outside the S-CNF total 8,934 acres and vary from 5,598 acres of weeds associated with the Leadore Ranger District (see Map 3-1) to 366 acres associated with the Yankee Fork Ranger District (Table 3-2). There were no inventoried off-Forest weed infestations associated with either the Challis or Middle Fork Ranger Districts. Spotted knapweed was the most abundant off-Forest weed species for the five Ranger Districts listed in Table 3-2, except for the Lost River Ranger District where spotted knapweed was second to leafy spurge in abundance. Thirteen other weed species were inventoried just outside S-CNF boundaries, with musk thistle, black henbane, hoary cress (whitetop), Canada thistle, and yellow toadflax among the more abundant species.

The degradation of public land resource values because of noxious weed infestations also has economic impacts. A study on the impact of spotted knapweed on Montana's economy (Hirsch and Leitch 1996) found that spotted knapweed infestations in wildlands have affected wildlife-associated recreation expenditures and soil and water conservation benefits. The direct impact on Idaho's economy has been estimated at more than $300 million annually (Idaho Strategic Plan for Managing Noxious Weeds, Idaho Department of Agriculture February 1999).

Data presented in Table 1-2 indicate how quickly weeds could potentially spread and dominate the S-CNF under the No Action Alternative. Five years from now, presently known weed infestations of approximately 66,000 acres would have doubled or tripled in size. Ten years from now, weeds would cover from over 200,000 acres (14 percent annual spread) to over 500,000 acres (24 percent annual spread) of the S-CNF. Twenty years from now, weeds would cover from just under 1,000,000 acres of the S-CNF at the most conservative spread rate (14 percent) to all of the S-CNF lands at the risk of invasion at the least conservative spread rate (24 percent).

These estimates are a sobering prediction of what could occur if treatment efforts remain at current levels.

TABLE 1-2
Estimates of Potential Acres of Noxious Weed Spread on the S-CNF Under the No Action Alternative (at Different Rates of Spread and Time Intervals)

Annual Weed Spread Rate (%)	Acres of Weed Infestations				
	Current Year (2002)	Year 5	Year 10	Year 15	Year 20
14	66,537	128,111	246,667	474,437	914,451
17	66,537	145,879	319,832	701,215	1,537,377
20	66,537	165,565	411,980	1,025,137	2,550,869
24	66,537	195,062	571,847	1,676,442	4,914,699*

*Exceeds total acreage of the S-CNF.

Noxious weeds negatively impact the natural plant communities they invade by reducing plant diversity and species richness, by decreasing the quality of habitat values for wildlife, and by overwhelming sensitive plant populations. Without aggressive treatment, noxious weeds would continue to displace native vegetation at the same or higher rates than currently. This would mean continued declines in plant diversity and species richness across native plant communities, particularly in the northern districts of the S-CNF where current infestations are heaviest. Declines in natural vegetative communities would result in declines in the quality of wildlife habitats. Populations of sensitive plant species in the path of weed expansion that could be expected to occur under less aggressive treatment would be impacted and probably overwhelmed by noxious weeds. Sensitive plant populations that are within or along the perimeter of the currently infested areas would have the highest potential to be negatively impacted.

The S-CNF must exercise responsible land management to prevent weed infestations from causing substantial habitat loss, with subsequent loss of plant diversity and ecosystem functions. Lack of effective weed management, in conjunction with the land use patterns around and within the S-CNF, will result in continued infestation onto Federally administered land from non-Federal land. Conversely, lack of effective weed management on some Federally administered land may infest neighboring non-Federal land or render weed control efforts on adjacent non-Federal land ineffective.

1.D. Proposed Action

1.D.1. Summary Description

a. Weed Treatment Objectives and Priorities

The overall management objective of the Proposed Action is to maximize the treatment of noxious and invasive weeds throughout the S-CNF using an IWM approach as quickly as reasonably possible to protect the forest and its resources. The S-CNF presently treats noxious weeds using IWM in conjunction with state and local agencies. This strategy is a holistic, *systems* approach to weed management. It involves the use of the best available management techniques to limit the impact and spread of the weed.

IWM typically includes strategies for awareness and education, early detection and proactive prevention of noxious weeds, the use of all treatment "tools" such as mechanical, biological, controlled grazing, and chemical management practices, followed by restoration and revegetation (cultural) (as appropriate) and monitoring of weed-impacted lands.

Weed treatment objectives under the Proposed Action of an IWM approach include eradication (elimination), control (reducing the population over time), and containment (preventing the population from spreading). Weed treatment priorities would be directed to where they have the greatest potential for removing or minimizing the adverse effects of weeds on other S-CNF resource values. Treatment priorities, in descending order, are as follows: 1) eradicate new populations of aggressive weeds; 2) control existing populations of aggressive weeds; 3) contain existing populations of aggressive weeds; 4) eradicate new populations of less aggressive weeds; 5) control existing populations of less aggressive weeds; 6) contain existing populations of less aggressive weeds; and 7) custodial (deferred) action. Levels of S-CNF funding, staffing, and other resource availability would ultimately determine the schedule for addressing and implementing treatment priorities. Weed treatment objectives and priorities are described in *Section 2.C.2, Treatment Objectives, Priorities, and Criteria.*

b. Weed Treatment Practices

The Proposed Action includes a full array of weed treatment practices: restoring and revegetating (where appropriate) sites; developing monitoring programs to follow treatment; implementing a broad range of mitigating BMPs and Standard Operating Procedures (SOPs); employing a site-specific minimum tool approach; and following an adaptive strategy in managing future weed infestations. Options for weed treatment that would be considered for use on a site-specific basis under the Proposed Action include a variety of mechanical, biological, controlled grazing, chemical (ground-based and aerial applications of herbicides), and combinations of these treatments. A number of non-treatment practices, which are a cornerstone of IWM programs, would continue under the Proposed Action. These IWM practices include proactive weed prevention programs; weed inventory and early detection; information and education programs; cooperative partnerships and coordination; and compliance with laws, orders, policies, and Forest Plans. Weed treatment practices are described in *Section 2.C.1, Treatment Practices*.

c. Mitigating BMPs and SOPs

BMPs for weed prevention and management that are followed by Region 4 of the Forest Service would be adhered to under the Proposed Action. In addition, BMPs and SOPs specifically associated with non-chemical weed treatments and with the ground-based and aerial applications of herbicides would be implemented as integral parts of the Proposed Action. These BMPs and SOPs are intended to avoid, minimize, or offset the potential for adverse impacts on S-CNF resources. Mitigating BMPs and SOPs are described in *Section 2.D.3, Management Practices and Mitigation Measures,* and Appendix A.

d. Restoration and Monitoring

Restoration and monitoring of treatment areas are integral components of the IWM program. Site restoration objectives include revegetating areas with desired vegetation where weeds have been eradicated, controlled, or contained; preventing future weed infestations; and slowing expansion of existing adjacent weed infestations. Implementation and effectiveness monitoring of treated and restored sites would be used to determine if the desired management objectives are being achieved, whether site restoration was successful, if follow-up treatments are needed, and to validate buffering effectiveness. Restoration and monitoring are described in detail in *Section 2.C.3, Restoration and Monitoring.*

e. Minimum Tool

Invasive weed treatments will incorporate the use of the "minimum tool" concept. During planning, S-CNF managers will select for use the minimum necessary method(s) to accomplish the weed management objectives at a specific site. If all treatment options are equally effective in controlling a particular species or infestation, the method with the least impact would be used. Parameters considered when selecting minimum tools include species biology, infestation size, proximity to water and recreation sites, and extent of sensitive habitats adjacent to infestations. The minimum tool would be determined using a site-specific implementation process and decision tree analysis that evaluates environmental parameters. Minimum tool is described in detail in *Section 2.C.5, Minimum Tool*. The site-specific implementation process and decision tree analysis are described in detail in *Section 2.C.6, Site-Specific Implementation Process*.

f. Adaptive Strategy

An adaptive weed management strategy would be employed to determine appropriate future actions to treat new populations of weeds, expansion of existing weed infestations, or weed infestations that have not yet been inventoried. The adaptive strategy would also cover any new weed species that occur on the S-CNF; any new federal-, state-, or county-designated species of noxious weeds; and any non-designated nuisance weeds present on the S-CNF. The process would include the following: 1) determine the weed species, level of aggressiveness, and infestation size; 2) determine the proximity to susceptible habitats, sensitive resources or species, administrative, or recreation sites; 3) determine a treatment priority level; 4) select and implement a treatment method using the site-specific minimum tool concept; and 5) conduct site restoration, monitoring, and assess follow-up needs. The scope of this EIS is intentionally broad relative to the issues and geographic scale analyzed in order to establish a basis for covering future weed treatments on the S-CNF using an adaptive strategy. Adaptive strategy is described more fully in *Section 2.C.4, Adaptive Strategy.*

g. Weed Treatment Acres, Sites, and Management Goals

Table 1-3 summarizes the acres of weed infestations on the S-CNF that would potentially be treated annually under the Proposed Action using various available treatment options. Estimates are based on the species of weeds present, their degree of aggressiveness, and the sizes and numbers of their infestations; corresponding treatment

priorities and objectives aimed at eradicating, controlling, and/or containing weeds; and treatment options available for various species of weeds.

The expected time frames and goals for accomplishing the Proposed Action management objective would vary depending on the extent and severity of weed infestations. As discussed in Chapter 2, known acres of weed infestations are considerably greater on the North Fork and Salmon-Cobalt Ranger Districts (primarily spotted knapweed infestations) than on the other five S-CNF Ranger Districts and may, therefore, require more time to achieve weed management goals. The following management goals are proposed for the S-CNF Ranger Districts:

- Eradicate all new starts (less than 5 acres in size) of aggressive weeds.
- Reduce established infestations of aggressive weeds 5 to 25 acres in size by 75 to 100 percent.
- Reduce established infestations of aggressive weeds greater than 25 acres in size by 50 percent.
- Eradicate all new starts (less than 5 acres in size) of less aggressive weeds.
- Reduce infestations of less aggressive weeds greater than 5 acres in size by 50 percent.
- Implement site restoration and revegetation actions (where appropriate) and monitoring programs following treatment to reduce or eliminate the subsequent reinvasion of weeds and to measure the degree of treatment success.
- Employ the minimum tool approach and an adaptive strategy using the site-specific implementation process.

The period of weed treatment under the Proposed Action would continue until a change in weed conditions on the S-CNF becomes evident, consistent with the proposed weed management goals. Future, presently undefined weed infestations would be treated using the adaptive strategy approach. For purposes of analysis in this Final EIS, it has been assumed that full funding would be available for implementing the Proposed Action to work toward achieving those goals. *Section 2.C, Integrated Weed Management*, describes these objectives in detail.

1.D.2. Scope of Proposed Action and Analysis

The full scope of the Proposed Action is described in detail in Chapter 2 of this Final EIS. Activities could occur in all S-CNF Ranger Districts described in the Challis National Forest Plan and the Salmon National Forest Plan, exclusive of the FCRONRW.

The analysis of effects in this Final EIS includes those occurring from the entire "scope" of the project. Scope is the range of actions and potential impacts that this EIS considers, varying from actions that have no impact, to direct and indirect impacts, to those that may have cumulative impacts (for example, potential weed invaders present near but outside S-CNF boundaries).

1.D.3. Selection of the Preferred Alternative

The Forest Service has selected the Proposed Action as the Preferred Alternative based on analyses presented in this Final EIS. The Proposed Action would be the most effective of the alternatives evaluated in eradicating, controlling, and containing noxious weeds on the S-CNF and in benefiting a broad range of S-CNF resources.

1.E. Management Direction

1.E.1. Relationship to Salmon and Challis National Forest Plans

Activities planned in the National Forest System involve two different levels of decisions: a general (programmatic) decision for an entire National Forest planning area and a site-specific decision for a specific project area. Relative to this EIS, the programmatic decisions are the Forest Plans prepared by the Challis National Forest in 1987 and the Salmon National Forest in 1988, before the two forests were combined administratively in 1995. Congressional authority did not occur until 2000. Both Forest Plans include a Final EIS that reviews the general cumulative effects of anticipated actions on a landscape level for such resource values as roadless areas, wildlife populations, and water quality of major drainages. The Forest Plans also establish standards to protect the environment. These standards are used as the basis to develop mitigation measures for the Proposed Action and alternatives addressed in this EIS. They are also used to measure the effect of the actions to ensure that those actions are in compliance with the Forest Plans.

This EIS is the specific decision-making tool to update and integrate weed management activities on the S-CNF. The S-CNF Noxious Weed Management Program EIS is not a general management plan for the project area or a programmatic EA. It is a linkage between the Forest Plans, weed management activities, and requirements established by NEPA.

Analyses in this EIS are not at the site-specific weed infestation level, but instead focus on treatment-specific and weed species-specific activities at a slightly broader scale with specific guidelines and restrictions regarding what treatments can or cannot be used and why. The types of clearances, BMPs, and SOPs to be used to avoid or minimize the potential for impacts are included, together with mitigation measures to compensate for unavoidable impacts, where appropriate. This information will be used by the Responsible S-CNF Official to make decisions for managing weeds on the S-CNF.

TABLE 1-3

Estimated Acres of Weed Infestations to be Treated Annually and Possible Treatment Options on the S-CNF for the Proposed Action[1,2]

	Possible Treatment Options									
	Mechanical	**Biological**	**Chemical**	**Mechanical and Chemical**	**Biological and Chemical**	**Grazing and Chemical**	**Mechanical and Biological**	**Mechanical and Grazing**	**Bilogical and Grazing**	**Total Acres**
Proposed Action	100	2,600	13,600	100	1,200	100	100	100	100	18,000

[1]Excludes the Frank Church River of No Return Wilderness.

[2]Estimated treatment acres based on values contained in Appendix B and information contained in Appendices C and J.

Both the Salmon National Forest (U.S. Forest Service 1987b) and Challis National Forest (U.S. Forest Service 1989) prepared EAs for weed control based on the Forest Plans in the late 1980s. These EAs adopted IPM concepts outlined in Regional National Forest weed control programs and the Forest Plans. The Salmon National Forest Plan provided: "Noxious weeds will be controlled as needed to protect and enhance the value of other resources and to comply with State law. … IPM, the concept of using interdisciplinary expertise to plan for and implement a control program using a combination of biological, mechanical, chemical and preventive management will be emphasized." More recent reports have noted the need for "new standards and guidelines in the Forest Plan." The current trend focuses treatment strategies on IWM, a subset of IPM.

1.E.2. Noxious Weed Management Philosophy

IWM incorporates planning and cooperative control strategies between S-CNF personnel and state and county weed control efforts. Presently, S-CNF managers work with the Lemhi, Butte, and Custer Counties' community-based weed management organizations, CWMAs, and the INWCC to coordinate planning and control efforts. This coordination effort is an important part of future weed management strategies. Also, as noted in the summary description of the Proposed Action, future weed management philosophy on the S-CNF would include use of the minimum tool approach as part of a site-specific implementation process when selecting a weed treatment method, and use of an adaptive weed management strategy for treating future, presently undefined weed infestations.

1.E.3. Laws, Regulations, and Policies for Noxious Weed Management on National Forests

The Federal Noxious Weed Act of 1974 requires agencies to develop programs to eradicate undesirable plants and "establish and adequately fund an undesirable plants management program through the agency's budgetary process; complete and implement cooperative agreements with state agencies regarding the management of undesirable plant species on Federal lands under the agency's jurisdiction; and establish integrated management systems to control or contain undesirable plant species targeted under cooperative agreements." (7 USCA § 2418). In addition, federal law requires agencies to consult with state and local agencies to develop a coordinated weed management effort.

Under Idaho's Noxious Weed Control Act (I.C. § 22-2401 *et. seq.*), it is unlawful for an individual to allow noxious weeds to propagate or go to seed on their land unless they are complying with an approved management plan. The law directs counties to develop weed control districts to plan and implement weed control efforts. County weed boards must make all reasonable efforts to develop and implement a noxious weed program covering all land within the district owned by the Federal government. Idaho's noxious weed statutes and regulations require coordinated efforts among the state, agencies, and counties to control designated noxious weed populations.

The 1998 *Forest Service Strategy for Noxious and Nonnative Invasive Plant Management* provides the Forest Service with a "roadmap into the future for preventing and controlling the spread of noxious weeds and non-native invasive plants." Presidential

Executive Order #13211 (February 1999) directs Federal agencies to conduct activities that reduce invasive weed populations.

1.F. Interrelated Projects

The State of Idaho has organized CWMAs (see *Section 1.A.2*). The INWCC coordinates statewide weed management efforts. Additionally, a recent State Executive Order established the Idaho Invasive Species Council to "provide policy level direction and planning for combating harmful invasive species infestations throughout the state and for preventing the introduction of others that may be potentially harmful." (Executive Order 2001-11, September 26, 2001). The Council includes representatives from Federal agencies (including the Forest Service) and the five Native American tribal governments in Idaho.

Under Idaho's Noxious Weed Management strategy, counties are required to develop local weed control management strategies. Butte, Lemhi, and Custer Counties all have IWM plans (Butte Soil and Water Conservation District 2001).

1.G. Supporting Documents and Past Analysis

This Final EIS is supported by the following documents, and incorporates their findings: Monitoring and Evaluation Report 1998 and 1999 (U.S. Forest Service 1999b); the FCRONRW Final EIS and Record of Decision (U.S. Forest Service 1999a); the Final EIS and Land Resource Management Plan for the Challis National Forest (U.S. Forest Service 1987a); the Final EIS and Land Resource Management Plan for the Salmon National Forest (U.S. Forest Service 1988a); the EA for the Noxious Weed Control Program, Salmon National Forest (U.S. Forest Service 1987b); the EA for Noxious Weed and Poisonous Plant Control, Challis National Forest (U.S. Forest Service 1989); the Intermountain Region Noxious Weed and Poisonous Plant Control Program Final EIS (U.S. Forest Service 1986); three sub-basin assessments (Upper Salmon, Lemhi, and Pahsimeroi) and numerous watershed assessments; and the Salmon-Challis National Forest Noxious Weed Management Program Draft EIS (U.S. Forest Service 2002d). These documents are available at the S-CNF offices in Salmon, Idaho. Other helpful documents include the Butte, Custer, and Lemhi Weed Management Plans, and the State of Idaho's Noxious Weed Strategic Plan. These documents are available on the internet and at the county extension offices.

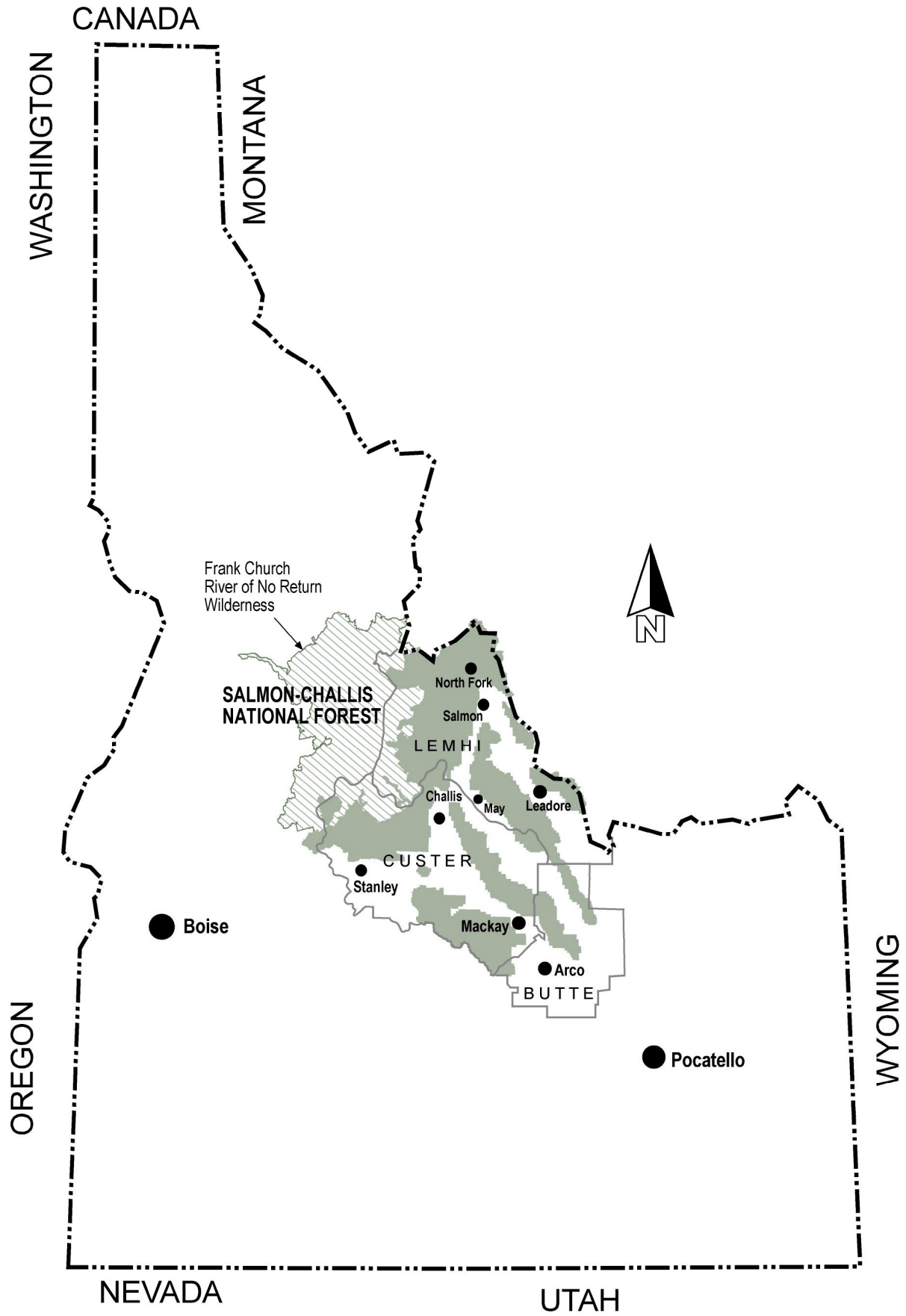
This Final EIS also is supported by the Interior Columbia Basin Ecosystem Management Project (ICBEMP). The ICBEMP was established in 1994 to develop a scientifically sound ecosystem-based strategy for managing forested lands east of the Cascade Mountains. Jointly managed by the Forest Service and the Bureau of Land Management (BLM), the ICBEMP data assess the physical, biological, and social conditions of the large-scale Columbia River Basin area. The recent ICBEMP Final EIS and Proposed Decision "incorporate restoring and maintaining ecosystems across the project area and providing for the social and economic needs of people, while reducing short- and long-term risks to natural resources from human and natural disturbances. An emphasis on conducting analyses, such as Subbasin Review and Ecosystem Analysis at the

Watershed Scale (EAWS), prior to conducting management activities is intended to minimize short-term risk from management activities in areas where short-term risks are of most concern, and to ensure actions occur in the most appropriate locations in the most appropriate sequence." (ICBEMP Proposed Decision 2000).

The ICBEMP effort recognizes the need for coordinating weed control efforts, and suggests that management decisions about weed control continue as a collaborative effort on Federal, state, and local levels. The ICBEMP Final EIS is available on the internet and at the county extension offices.

1.H. Decision Framework

The S-CNF Supervisor will issue a Record of Decision (ROD) based on this Final EIS, which has been prepared following the public review of the Draft EIS. The ROD will document what treatment actions, if any, should be taken to control weeds on the S-CNF, where treatment should be applied, what type of treatment(s) should be used, and when treatment will occur.



MAP 1-1
Salmon-Challis National Forest
Location Map